to assume an assistantship in the Radcliffe Observatory, Oxford, under the late Mr. Johnson; and there his zeal was rewarded by the discovery of several minor planets, in days when the number of the known asteroids was comparatively small, and their discovery conferred some little distinction upon their fortunate discoverer. Of greater importance to astronomy was his subsequent devotion to variable stars and photometry, the latter carried out, we believe, with the apparently inappropriate instrumental means of the heliometer of the Radcliffe Observatory, Oxford. But the result of his investigation of the amount of light that separates two consecutive magnitudes has never been displaced, and the fortunate employment of the number, whose logarithm is 0·4, to express this ratio will probably long connect Mr. Pogson's name with the history of accurate photometry.

After a somewhat short stay at the Hartwell Observatory, Mr. Pogson left England in 1861 to take charge of the Madras Observatory. His direction of that institution will always be remembered in connection with the extraordinary discovery of a telescopic comet, effected in consequence of the telegraphic communication he received from Prof. Klinkerfues, who expected that Biela's comet might be seen in the constellation Centaur, after the brilliant meteoric shower to which that comet had given rise in November 1872. Mr. Pogson looked in the direction indicated, and by a remarkable coincidence found a comet, which he observed on two, and only two, occasions. The orbit remains, therefore, indeterminate, but there is good reason to believe that the object seen was in no way connected with either of the two condensations which together make up the lost comet of Biela. And thus another and not uninteresting chapter was added to the history of this comet. Several volumes of observations have been published under Mr. Pogson's direction; the last bears the date of 1870, so that probably, and as the Director has often lamented, the reductions are considerably in arrear.

It will be interesting to watch the future of this Observatory. It is to be hoped that some steps will be taken to place it more in accordance with the requirements of the present time. We believe that its abandonment has even been canvassed, but it cannot be sufficiently regretted if an Observatory, possessing as that does many historical associations, and occupying a very favourable position on the earth's surface, be allowed to disappear.

W. E. P.

NOTES.

The death of Wilhelm Weber, the illustrious physicist, is announced. He died at Göttingen on June 23. On a future occasion we shall give some account of his services to science.

The second lecture in connection with the Faraday Centenary was delivered by Prof. Dewar, F.R.S., at the Royal Institution on Friday evening last.

On Tuesday, Lord Cranbrook, in the House of Lords, moved the second reading of a Bill the object of which is to allow the managers of science and art schools to transfer them to local authorities when they desire to do so. Lord Cranbrook explained that at present there were considerable difficulties in the way, and that the process was a very long and tedious one. The Bill proposed to make these schools transferable in the same way as ordinary schools could be transferred to School Boards. The Bill was read a second time.

Drs. J. Bornmüller and P. Sintenis propose to occupy the present summer with an investigation of the flora of the islands Samothrace and Thasos, from which very few collections are to be found in European herbaria; also of Mount Athos and of the Bithynian Olympus. They then intend to take up their winter quarters in Mossul, and to spend the following spring and early summer in the comparatively unknown mountainous region of Djebel Hamzin near Bagdad, and the mountains to the north and east of Mossul.

The distinguished Italian botanist, Prof. O. Penzig, is about to start on a botanical expedition to Massowah and Bogos.

Mr. J. T. Nicolson, at present Prof. Ewing's demonstrator in the University of Cambridge, has been appointed to the Chair of Mechanical Engineering in the McGill University, Montreal.

A stall for the sale of "zoological photographs" has just been opened in the Zoological Society's Gardens. It is placed in the centre of the Gardens, near the band-stand, and has an attractive exterior. The photographs sold are mostly representations of animals in the Society's Gardens, but also include some taken in the Jardin d'Acclimatation of Paris, and in other similar establishments.

The marine laboratory of the Johns Hopkins University will be open this summer at Port Antonio on the north-east coast of Jamaica. According to *Science* of June 19, Prof. Brooks and some members of his party had already started for the station.

There has been lately formed in Berlin (we learn from *Naturw. Rdsch.*) a "Union of friends of Astronomy and Cosmical Physics," with the view of organizing practical co-operation in these subjects of research in Germany, Austria, Hungary, Switzerland, and neighbouring countries, and also in the colonies, and where membership may be desired. The object is to be sought by means of free communications of the members or groups of members to head-quarters, whence advice and results of observations, &c., will be issued. Sections are formed for observations (1) of the sun; (2) of the moon; (3) of the intensity and colour of starlight and of the Milky Way; (4) of the zodiacal light and meteors; (5) of polar light, terrestrial magnetism, earth currents, and atmospheric electricity; and (6) of clouds, halos, and thunderstorms. Prof. Lehman-Filhés has been elected President of the Union, and the presidents of the sections are Förster, M. W. Meyer, Plassmann, Jesse, Weinstein, and Reimann.

According to a telegram sent through Reuter's Agency from San Francisco on June 29, a series of sudden sharp earthquake shocks, accompanied by subterranean rumblings, passed through San José, California, that morning. The first shock was so violent that the electric-light tower, two hundred and forty feet high, swayed for at least ten feet. A panic prevailed in the town; and in two of the principal hotels, which were filled with tourists from the East, men and women rushed half-dressed from their rooms into the corridors in a great state of alarm. The city rocked like a ship in the trough of the sea, and when the second shock occurred, buildings rose and fell with a slow undulating motion, one partly erected brick building tumbling to the ground. Many chimneys fell, and a large number of windows were broken, while considerable damage was done to crockery and other fragile articles in the houses.

Germany had very heavy rains on November 22 to 24 last year, causing floods at a rather unusual time in the region of the Elbe, Weser, &c. It is shown by Prof. Hellmann, that Middle and West Germany were then on the front side of a deep depression, which passed very slowly from north to south, taking about 90 hours from the North Sea to Central Germany, less than half the usual speed from west to east. A region of high pressure with cold lay to the east, blocking the course in that direction, and this afterwards spread over the flooded country, covering it with ice.

The Central Meteorological Observatory at Tokio, Japan, has begun the publication of hourly meteorological observations, commencing with January 1890. The observations are contained in monthly Bulletins, and include all the usual elements, together with vapour tension, humidity, earth temperature, bright sunshine, and hourly and daily means. Meteorological observations have been made for some years in various parts of Japan, including hourly observations at Tokio since January 1, 1886, but have hitherto only been published for certain hours. The observations are all made without self-recording instruments, excepting those of wind and sunshine. Some years ago the Director of the Service, I. Arai, visited this country, and other European countries, for the purpose of studying the various meteorological organizations, and we have no doubt that this important publication will be very valuable for meteorological researches referring to the North Pacific Ocean, where information is comparatively scanty.

M. Maspero has an interesting article in the current number of *La Nature* on the dog in ancient Egypt. It is illustrated by representations of dogs reproduced from Egyptian monuments, and by a mummy of a dog recently opened and sketched by M. Beckmann. In ancient Egypt, as in modern Europe, the dog was regarded both as a friend and as a useful servant. He also received the honours of a god, and there are cemeteries of dogs (corresponding to the cemeteries of cats) where mummies have been found by the thousand. Attempts have been made to identify the various species of dogs represented in wall paintings, but those naturalists who have investigated the subject have not always arrived at the same conclusions. M. Maspero points out that mummies supply more trustworthy materials for study, and urges that men of science should lose no time in examining some of them, as cemeteries of animals are being very rapidly "exploited."

A commercial company has for some time been working quarries in the neighbourhood of the well-known glacial grooves at Kelley Island, Ohio; and it was feared that these remarkable relics of the glacial epoch might be wholly destroyed. Fortunately the president of the company understands the interest of the phenomena, and has taken care to prevent the most striking of them from being injured. We learn from the Cleveland *Leader* that some of the grooves have now been rendered safe, the company at its recent annual meeting having decided that the rocks on which they are furrowed should be made over to the president, by whom they will be transferred to a scientific or historical society, "to be preserved in perpetuity for the benefit of science."

Mr. C. Davies Sherborn is, we are glad to find, making satisfactory progress with the stupendous task he has undertaken in the production of his "Index Generum et Specierum Animalium." Mr. Sherborn has found it absolutely necessary to accept the year 1758, the date of the tenth edition of Linnæus's "Systema," instead of the twelfth edition (1766), as the starting-point of binomial nomenclature in zoology, and this decision was greatly strengthened by the advice of Prof. Sven Loven, Dr. D. Sharp, and others who had carefully studied the question. This is the only alteration which has been made in the original scheme (see Nature, vol. xlii. p. 54). During the year, five hundred volumes have been worked through, page by page, and a total of forty thousand species have been recorded, *in duplicate*, involving a use of 80,000 slips. Each species is recorded on a separate slip (5 inches × 2½), the whole of the *reference*, with the sole exception of the page, being printed with india-rubber type, thus insuring perfect accuracy of date and parts of volumes: as the pages are also checked during work, the chances of misquotation are reduced to a minimum. As the volumes mentioned include the whole of the publications of Linnæus, many of Fabricius, Thunberg, and other voluminous authors of that early period, it is, perhaps, permissible to think that more rapid progress may be made in future years. The dates of publication of the separate parts of a work have been carefully attended to, and much valuable information has been obtained. Some of this has appeared in the *Annals of Natural History* (Pallas's "Icones Insect.," "Nov. Spec. Quad.," and White's "Journal"), while much remains in manuscript until the final completion of detail admits of its publication. As is well known, the authorities of the Natural History Museum have rendered every facility to Mr. Sherborn for the prosecution of his work, and the storage of the manuscripts within the walls of that institution, reducing the risk of loss by fire to a minimum, is a concession highly valued by the author. One set of the slips is arranged in order of genera, and, on application, is available for reference to anyone compiling a monograph of a genus. The manuscript is frequently consulted by those working at the Natural History Museum, even in its present imperfect state, and will, from the very nature of the method of recording, prove of increasing value as it grows to larger proportions.

In the report of the trustees of the South African Museum for 1890 it is stated that the curator, Mr. R. Trimen, has completed a thorough rearrangement of the fine collection of South African Diurnal Lepidoptera in accordance with the monograph of those insects recently published by him, incorporating many additional species, and replacing imperfect or worn examples by fresher and more characteristic specimens. He has also begun the rearrangement of the more numerous and less known Crepuscular and Nocturnal Lepidoptera. Mr. Trimen has completed for publication two papers—one on the very interesting series of butterflies collected in South-West Tropical Africa by Mr. A. W. Eriksson, and presented by that explorer to the Museum in 1888; and the other on some additions to the list of extra-tropical South African butterflies since the publication of the concluding volume of his work.

An interesting account of the nest and eggs of the cat-bird (*Ailurœdus viridis*, Latham) is given by Mr. A. J. North in the latest number of the Records of the Australian Museum (vol. i., No. 6). The habitat of the cat-bird is the dense scrubs of the coastal ranges of New South Wales. Although the bird is common, authentic specimens of its nest and eggs seem to have been unknown until lately. For an opportunity of examining such specimens, Mr. North is indebted to Mr. W. J. Grimes, an enthusiastic oologist, who recently secured two nests of this species on the Tweed River. The nest is a beautiful structure, being bowl-shaped, and composed exteriorly of long twigs, entwined around the large broad leaves of *Ptarietia argyrodendron*, and other broad-leaved trees, some of the leaves measuring eleven inches in length by four inches in breadth. The leaves appear to have been picked when green, so beautifully do they fit the rounded form of the nest, one side of which is almost hidden by them. The interior of the nest is lined entirely with fine twigs. The eggs are two in number for a sitting, oval in form, being but slightly compressed at the smaller end, of a uniform creamy white very faintly tinged with green, the shell being comparatively smooth and slightly glossy. Although the cat-bird is usually included in the family of bower-building birds, Mr. North has never known or heard of its constructing a bower.

A catalogue of the Australian birds in the Australian Museum, at Sydney, by Dr. E. P. Ramsay, is being published. Part III., which has just been issued, deals with Psittaci.

As a substance peculiarly fitted, by reason of its high dispersive power, and transparency for ultra-violet rays, for study of the ultra-violet part of the spectrum, Herr Wolter has recently recommended, in a Hamburg serial, α-monobromnaphtalin.

With a prism of the liquid, he could trace the spectrum beyond N on a fluoresceïn-solution. Besides the above-named properties, the substance has for boiling-point 277° C.; it has no offensive smell like carbon sulphide, and its index of refraction varies much less with temperature than in the case of that liquid.

The material resources of the southern part of Maryland are still so imperfectly known that a scientific expedition for the investigation of the district was recently organized. The expedition was formed under the joint auspices of the Johns Hopkins University, the Maryland Agricultural College, and the U.S. Geological Survey. An interesting report of the work done has been published in one of the Johns Hopkins University Circulars.

Dr. Alfred Tuckerman has compiled an excellent "Bibliography of the Chemical Influence of Light," which has been published as one of the Smithsonian miscellaneous collections. As the compiler had in view only the scientific aspects of the subject, he has omitted nearly all the practical applications, including that of photography. An index to the literature of photography is being prepared under the auspices of the committee for indexing chemical literature, of the American Association for the Advancement of Science.

The College of Science, Imperial University, Japan, has issued the first part of the fourth volume of its Journal. It opens with a paper on the fœtal membranes of Chelonia, by K. Mitsukuri. After this come the following articles:—On the development of Araneina, by Kamakichi Kishinouye; observations on fresh-water Polyzoa, by A. Oka; on *Diplozoon nipponicum*, n. sp., by Seitaro Goto; a new species of Hymenomycetous Fungus injurious to the mulberry tree, by Nobujiro Tanaka; notes on the irritability of the stigma, by M. Miyoshi; notes on the development of the suprarenal bodies in the mouse, by Masamaro Inaba. Each of the papers is illustrated.

Mr. C. C. Vevers, Leeds, has sent us a copy of the fourth edition, illustrated, of his "Practical Amateur Photography." The volume is described in the preface as "a simple text-book for the beginner, and a handy work of reference for the advanced photographer." Mr. Vevers has also published an illustrated catalogue of photographic apparatus.

The Manchester Microscopical Society has issued its Transactions and Annual Report, 1890. The volume includes two Presidential addresses by Prof. Milnes Marshall, papers and communications read by the members, and a list of members.

We have received from Mr. William F. Clay, Edinburgh, a catalogue of scientific books which he offers for sale. The works relate to chemistry and allied sciences.

As briefly announced in our report of the last meeting of the Paris Academy of Sciences a new compound of iron and carbon monoxide has been obtained by M. Berthelot, analogous to the nickel compound described last year by Messrs. Mond, Lang, and Quincke. In order to obtain it, the iron requires to be in a very finely divided state, and free from admixed oxide. It is most suitably obtained by reducing dried precipitated ferric oxide or oxide obtained by ignition of ferrous oxalate in a current of pure hydrogen. When carbon monoxide is led over metallic iron thus prepared, and the tube containing it gently warmed to about 45° C., the reaction commences, and if the issuing gas, after being washed through water, is ignited at a jet, the flame is observed to be quite different from that of pure carbon monoxide, being brilliantly luminous, almost white, and emitting rays which furnish a definite spectrum. Moreover, if a cold porcelain tile or evaporating basin is depressed upon the flame a deposit of metallic iron more or less admixed with oxide is obtained, indicating the existence in the issuing gas of the vapour of a ferruginous compound. A drop of dilute hydrochloric acid at once dissolves the stain, and the solution affords the ordinary reactions of iron, yielding Prussian blue with potassium ferrocyanide for instance. When the gases are passed through a strictured tube, such as is employed in Marsh's arsenic apparatus, a portion of which is heated to redness, an annular deposit of metallic iron is obtained, containing a slight amount of admixed carbon. M. Berthelot has not yet succeeded in obtaining sufficient of the new compound to condense it to the liquid form, but further experiments with that end in view are in progress. The formation of this volatile compound of iron and carbon monoxide will undoubtedly prove of great interest from a metallurgical point of view, as it may assist in elucidating several of the as yet little understood furnace reactions. M. Berthelot further expresses the opinion that it may help to explain the formation of bubble flaws in manufactured iron, which have so frequently led to such unfortunate results. In addition to the preparation of iron-carbonyl, M. Berthelot describes several new reactions of nickel carbonyl. It will be remembered that this substance is a liquid boiling at 46°, so volatile that, according to M. Berthelot, its vapour tension at 16° is a quarter of an atmosphere. A drop placed upon a glass plate rapidly volatilizes, the portion last to disappear being for a few moments cooled down by the evaporation of the first portion to such an extent as to form beautiful little crystals. When suddenly heated to 70° it detonates, the detonating reaction being expressed by the equation $Ni(CO)_4 = 2CO_2 + 2C + Ni$. When mixed with oxygen, simple agitation of the tube containing it over mercury brings about detonation. When oxygen is permitted to slowly gain access to the liquid oxide, a solid substance is formed, which is green if the oxygen is moist and brownish-yellow if dry. In contact with oil of vitriol the liquid compound appears to be unaffected for a few moments, but suddenly explodes with production of flame. Nitric oxide reacts in a most beautiful manner, either when passed into the liquid or its vapour, bright blue fumes being produced of a complex compound, which eventually subside, forming a blue solid. These blue vapours completely fill the whole vessel, and their formation affords one of the prettiest experiments yet described.

Contemporaneously with the above work of M. Berthelot, Mr. Mond and his co-workers have also been conducting experiments with the view to the preparation of iron carbonyl, which have been so successful that a brief account of them was laid before the Chemical Society at their last meeting. Further particulars of these experiments will be given as soon as published.

The additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus* ♀) from India, presented by Mr. Albert Job; an American Red Fox (*Canis fulvus*) from North America, presented by Mr. W. Reading; a Two-spotted Paradoxure (*Nandinia binotata*) from West Africa, presented by Mr. E. G. Parkinson; a Sinaitic Ibex (*Capra sinaitic*) from Palestine, presented by Sir James Anderson; two Gaimard's Rat-Kangaroos (*Hypsiprymnus gaimardi*) from Australia, presented by Mr. Walter Howker; a Cuckoo (*Cuculus canorus*), British, presented by Mr. Stacy Marks, R.A., F.Z.S.; two Red-billed Tree Ducks (*Dendrocygna autumnalis*) from America, presented by Mr. Keswick; two White-faced Tree Ducks (*Dendrocygna viduata*) from Brazil, presented by Captain C. A. Findlay, R.N.R.; a Common Viper (*Vipera berus*), British, presented by Mr. J. Sargeant; two White-headed Sea-Eagles (*Haliaëtus leucocephalus*) from North America, deposited; a Burchell's Zebra (*Equus burchelli* ♂), a Derbian Wallaby (*Halmaturus derbianus*), three Common Night Herons (*Nycticorax griseus*), bred in the Gardens.